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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,351	10/01/2003	Yung-Chen Chen	BHT-3223-36	3784

7590 10/04/2004

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EXAMINER

KERNS, KEVIN P

ART UNIT PAPER NUMBER

1725

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,351

Applicant(s)

CHEN ET AL.

Examiner

Kevin P. Kerns

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 1-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because the flowchart of Figure 2 includes the term "preset", which should be changed to "placed" to be in agreement with the specification and claims. In Figures 3 and 4, the segments marked as Areas 1, 2, and 3 (disclosed in the 1st full paragraph on page 4 of the specification) cannot be distinguished due to a "photocopied" appearance. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because all instances of "modeling" should be changed to "molding". Also, all instances of "melting" should be changed to "molten". In line 6, "gravity casing" should be changed to "a gravity casting". In line 7, it is believed that "diffused lamination" should be changed to "diffusion bonding".

Correction is required. See MPEP § 608.01(b).

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Sink Compound Laminate Molding Process".

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification lacks a description of the claim 6 limitation "various shape including triangle and strip".

5. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors (grammatical, typographical, and idiomatic).

Cooperation of the applicants is requested in correcting any errors of which the applicants may become aware of in the specification, in the claims, and in any future amendment(s) that the applicants may file.

For example, all instances of "modeling" should be changed to "molding"; all instances of "melting" should be changed to "molten"; all instances of "diffused lamination" and "diffused binding" should (probably) be changed to "diffusion bonding"; and all instances of "fast conduct" should be changed to "rapidly conduct". It is also unclear what is meant by "branch structure", which has been recited on several occasions throughout the specification. It is believed that most of these errors have resulted from translation, and corrections and/or clarifications are required for these and other errors that occur throughout the specification.

Claim Objections

6. Claims 1-8 are objected to because of the following informalities: in the 1st line of all claims 1-8, as well as the 3rd line of claim 2 and the 2nd line of claim 3, "modeling" should be changed to "molding".

In claim 1, 5th line, "the" should be changed to "a" before "molding" to obtain proper antecedent basis. In claim 1, 6th line, "is" should be added after "material". In claim 1, 12th line, "from" should be added before "taking". In claim 1, 14th line "The melting" should be changed to "A molten". In claim 1, 16th line, "diffused binding to the" should be changed to "diffusion bonding to an". In claim 1, 3rd line from the end, "the" should be deleted to obtain proper antecedent basis.

In claim 2, 2nd line, "poured" should be changed to "introduced". In claim 2, 4th line, "from" should be added before "taking".

In claim 3, 4th line, "from" should be added before "taking".

In claim 4, "relates to a strict copper" should be changed to "is pure copper" (or an equivalent).

In claim 5, 2nd line, "relates to" should be changed to "is".

In claim 6, 3rd line, "shape" should be changed to "shapes".

In claim 7, "relates to a strict aluminum" should be changed to "is pure aluminum" (or an equivalent).

In claim 8, 2nd line, "relates to" should be changed to "is".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, the limitations "depending on the profile of the sink" and "in a given profile" are unclear, since "the profile" and "the sink" lack antecedent basis, and the range of thicknesses would only limit the profile in the thickness dimension.

With regard to claim 1, it is unclear how the bottom of copper material would be "completely bound" to the bottom layer of the molding cavity. First, it is unclear that the molding cavity would have more than a single "layer". Second, how does the copper material become "clearly bound", by heating?

With regard to the portion of the claims that set forth process steps, these claims would be more distinct if written in positive, active steps (e.g. in claim 1: step 1 preparing...; step 2 placing...; step 3 heating...; step 4 pouring...; step 5 cooling...).

With regard to claim 8, this claim recites improper Markush language. See MPEP 2173.05(h).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donomoto et al. (US 4,708,847).

Donomoto et al. disclose a method for alloying substances by casting that results in production of a compound laminate (heterogeneous diffusion bonded metal alloy), in which the method includes preparing a sheet of a metallic material (including copper and its alloys) with a higher melting point into a casting mold cavity (4,12,39); preheating the copper to a temperature of 400 degrees Celsius (5th preferred embodiment; and Figure 12) or 600 degrees Celsius (7th preferred embodiment; and Figures 1, 6, 10, and 12) in a casting mold while providing vacuum and/or (inert) gas pressure to the casting system to prevent surface oxidation of the molten metallic material (column 5, lines 29-34; 4th preferred embodiment; and Figure 10) within the casting mold; pouring a molten aluminum material (comparatively lower melting point) into the mold cavity (4,12,39) by any one of pressure, centrifugal, or gravity casting, to create diffusion bonding; and cooling the molten aluminum to solidification to form a heterogeneous alloy of copper (higher melting point) and aluminum (lower melting point), or alloys of copper or aluminum with other metals, such as Al/Si (1st, 2nd, 3rd, 5th, 8th, 9th, 10th, 11th, 14th, 17th, 22nd, and 23rd preferred embodiments; and Figures 1, 6, 8, 10, and 12), in order to produce a diffusion bonded alloy material (abstract; column 1, lines 8-14; column 2, lines 20-68; column 3, lines 1-18 and 48-68; column 4, lines 1-22 and 42-68; column 5, lines 1-40; column 7, lines 50-68; column 8, lines 1-44; column 9, lines 32-68; column 10, lines 1-37 and 63-68; column 11, lines 1-68; column 12, lines 1-21 and 54-68; column 13, lines 1-56; column 14, lines 11-68; column 15, lines 1-47; and Figures 1, 6, 8, 10, and 12). Although not specifically disclosed by Donomoto et al., one of ordinary skill in the art would have recognized that the casting methods resulting in a

Art Unit: 1725

variety of heterogeneously alloyed materials would be routinely undertaken to create a variety of shapes and sizes of resulting alloy by using the higher melting point metallic material (including a copper sheet thickness of 0.1-8.0 mm) within the casting mold prior to pouring, such that specialized alloys of various geometries would be obtained by the variety of casting methods and/or molding cavity sizes/shapes (Donomoto et al.; abstract; column 4, lines 54-68; column 5, lines 1-40; column 10, lines 63-68; and column 11, lines 1-3).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Larson, Northwood, Mashiko et al., and Cornie et al. references are also cited in PTO-892.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1725

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 9/30/04*
Examiner
Art Unit 1725

KPK
kpk
September 30, 2004